

Claims

- [c1] 1. A spread spectrum communication system receiving device for receiving a signal transmitted in a spread spectrum communication system, said receiving device, comprising:
- an A/D converter for converting a received signal to digital data;
 - a Fourier transformer for subjecting the digital data outputted from said A/D converter to fast Fourier transform and detecting a frequency component associated with an interference signal from the obtained frequency spectrum of the received signal;
 - a noise eliminator for eliminating the frequency component associated with the interference signal based on a result of the detection in said Fourier transformer;
 - an inverse Fourier transformer for subjecting an output from said noise eliminator to inverse fast Fourier transform;
 - an inverse spread processor for subjecting an output from said inverse Fourier transformer to inverse spread processing; and
 - a demodulator for subjecting an output from said inverse spread processor to demodulation processing.

- [c2] 2. The receiving device according to claim 1, wherein said noise eliminator eliminates a frequency component whose energy is larger than a certain threshold level based on the result of the detection in said Fourier transformer.
- [c3] 3. The receiving device according to claim 1, wherein said noise eliminator judges whether energy of the received signal is larger than a certain threshold level for each frequency component based on the frequency spectrum of the received signal obtained in said Fourier transformer, and eliminates a frequency component whose energy is larger than the threshold level as a result of the judgment.
- [c4] 4. The receiving device according to claim 1, further comprising a multiplier for multiplying the digital data outputted from said A/D converter by a window function and outputting an operation result to said Fourier transformer.
- [c5] 5. The receiving device according to claim 4, wherein the window function is a window function for preventing a side lobe caused by the fast Fourier transform.
- [c6] 6. The receiving device according to claim 1, wherein said spread spectrum communication system receiving

device frequency—converts the received signal in a direct conversion system.

[c7] 7. The receiving device according to claim 1, further comprising a frequency converter for frequency—converting the received signal to baseband, wherein said A/D converter converts the frequency—converted received signal to the digital data.

[c8] 8. A spread spectrum communication system receiving device having a function of eliminating a narrow—band interference frequency component in a spread spectrum communication system from a received signal, said receiving device, comprising:
an A/D converter for frequency—converting the received signal to baseband and then converting the resultant received signal to digital data;
a digital arithmetic circuit for subjecting the received signal digitized by said A/D converter to fast Fourier transform, and detecting and eliminating single—frequency and narrow—band interference frequency components from a frequency spectrum of the resultant received signal; and
a signal processor for subjecting the received signal processed in said digital arithmetic circuit to inverse fast Fourier transform to return the received signal to time—axis data, and subjecting the time—axis data to inverse

spread processing and demodulation processing.

[c9] 9. The receiving device according to claim 8, wherein said digital arithmetic circuit is composed of a CPU or a DSP.

[c10] 10. The receiving device according to claim 8, wherein said digital arithmetic circuit comprises:
an interference signal detector for subjecting the received signal to the fast Fourier transform and detecting the single-frequency and narrow-band interference frequency components from the obtained frequency spectrum; and
a noise eliminator for eliminating the interference frequency components.